

ANTENNA COUPLING SYSTEMS AND METHODS FOR TRANSMITTERS

ABSTRACT OF THE DISCLOSURE

Multiple radio channel frequency signals that are modulated with respective information modulation are transmitted from a common antenna at multiple radio frequencies. Multiple modulators are provided, a respective one of which corresponds to a respective one of the radio channel frequencies. Each modulator generates at least one constant amplitude, phase modulated drive signal at the corresponding radio channel frequency from the respective information modulation, such that the at least one constant amplitude, phase modulated drive signal corresponds to the information modulation for the corresponding radio frequency. At least one saturated power amplifier is provided for each of the at least one constant amplitude, phase modulated drive signals. A respective saturated power amplifier is responsive to the corresponding constant amplitude, phase modulated drive signal, to produce a corresponding amplified output signal at an output thereof. A coupling network connects the outputs of the saturated power amplifiers in series, to produce a combined signal that is applied to the common antenna, such that the common antenna radiates the radio channel frequency signals that are modulated with the respective information modulation. In first embodiments, the at least one constant amplitude, phase modulated drive signal is a single constant envelope modulation drive signal, wherein the information modulation is a constant envelope information modulation. In other embodiments, at least two constant amplitude phase modulated drive signals are provided at the corresponding radio channel frequency, such that the at least two constant amplitude, phase modulated drive signals correspond to the information modulation for the corresponding radio frequency.